Complete Summary

GUIDELINE TITLE

Guidelines on management (diagnosis and treatment) of syncope.

BIBLIOGRAPHIC SOURCE(S)

Brignole M, Alboni P, Benditt D, Bergfeldt L, Blanc JJ, Bloch Thomsen PE, van Dijk JG, Fitzpatrick A, Hohnloser S, Janousek J, Kapoor W, Kenny RA, Kulakowski P, Moya A, Raviele A, Sutton R, Theodorakis G, Wieling W. Guidelines on management (diagnosis and treatment) of syncope. Eur Heart J 2001 Aug;22(15):1256-306. [409 references]

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Syncope

GUIDELINE CATEGORY

Diagnosis
Evaluation
Treatment

CLINICAL SPECIALTY

Cardiology
Family Practice
Internal Medicine

INTENDED USERS

Physicians

GUIDELINE OBJECTIVE(S)

To provide specific recommendations on the diagnostic evaluation and management of syncope

TARGET POPULATION

Patients with syncope

INTERVENTIONS AND PRACTICES CONSIDERED

Diagnosis

1. History, physical examination with orthostatic blood pressure measurements, and 12-lead electrocardiogram
2. Further evaluation including echocardiography, stress testing, and tests for arrhythmia detection such as prolonged electrocardiographic and loop (external or implantable loop recorders) monitoring or electrophysiological study
3. Tilt testing, with or without nitroglycerine or isoproterenol/isoprenaline provocation
4. Carotid massage
5. Psychiatric assessment, when applicable
6. Reappraisal of work-up
7. Intravenous injection of adenosine triphosphate (ATP test)
8. Ventricular signal-averaged electrocardiogram (considered, but not recommended routinely)
9. Exercise testing
10. Cardiac catheterization and angiography
11. Neurological evaluation including electroencephalography, computed tomography, magnetic resonance imaging, and carotid Doppler ultrasonography

Treatment

1. Education of patients to avoid trigger events, recognize the symptoms, and manoeuvres to abort episode
2. Modification of hypotensive drug treatment for concomitant conditions
3. Volume expansion through increased salt intake or use of low-dose fludrocortisone
4. Exercise training
5. Tilt-training
6. Beta-blockers (considered but not recommended)
7. Vasoconstrictors
8. Alpha stimulating agents, such as midodrine
9. Cardiac pacemaker therapy
10. Implantable pacemaker cardioverter-defibrillators
11. Anti-arrhythmic agents, particularly class III agents such as amiodarone
12. Surgery, including revascularization or angioplasty

13. Behavior modification

MAJOR OUTCOMES CONSIDERED

- Accuracy, sensitivity, specificity, and prognostic value of diagnostic tests and procedures
- Syncopal recurrences
- Mortality risk
- Symptom recurrence and associated injuries
- Quality of life
- Complications and adverse effects of diagnostic procedures

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Subgroups of the panel performed literature searches on MEDLINE; panel members supplemented the search results with documents from their personal collections.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Levels of Evidence:

A. Data derived from multiple randomized clinical trials or meta-analyses
B. Data derived from a single randomized trial or non-randomized studies
C. Consensus opinion of the experts

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

The methodology for writing the guideline document consisted of literature reviews and consensus development by the panel assembled by the European Society of Cardiology. The panel met in August 1999 and developed a comprehensive outline of the issues that needed to be addressed in the document. Subgroups of the panel were formed and each was assigned the task of reviewing the literature on a specific topic and of developing a draft summarizing the issue. The panel reconvened in January 2000, reviewed the draft documents, made revisions whenever appropriate and developed the consensus recommendations. The panel discussed each recommendation and arrived at consensus by obtaining a majority vote. When there was divergence of opinion, this was noted. Since the goal of the project was to provide specific recommendations for diagnosis and management, guidelines are provided even when the data from the literature is not definitive. It must be pointed out that most of the recommendations are based on consensus expert opinion. All the members of the panel reviewed final drafts of the document and their comments were incorporated. If changes in recommendations were suggested, these were brought to vote in a second meeting in August 2000.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Class I: when there is evidence for and/or general agreement that the procedure or treatment is useful.

Class II: when usefulness of the procedure or treatment is less well established or divergence of opinion exists among the members of the Task Force.

Class III: when the procedure or treatment is not useful and in some cases may be harmful.

COST ANALYSIS

Patients with syncope are often admitted to hospital and undergo expensive and repeated investigations, many of which do not provide a definite diagnosis. A study in 1982 showed that patients often underwent multiple diagnostic tests despite which a cause of syncope was established in only 13 of 121 patients]. With the advent of newer diagnostic tests (e.g., tilt testing, wider use of electrophysiological testing, loop monitoring) it is likely that patients are undergoing a greater number of tests at considerably higher cost. In a recent study, based on administrative data from Medicare, there were estimated to be 19,3164 syncope hospital discharges in 1993 in the U.S.A. The cost per discharge was calculated as $4132 and increased to $5281 for those patients who were readmitted for recurrent syncope. This figure underestimates the true total cost associated with syncope because many patients with syncope are not admitted to hospital for either investigation or therapy.

METHOD OF GUIDELINE VALIDATION

External Peer Review
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

The executive committee met in February 2001 to consider the comments of external reviewers, and to make amendments. Finally, the document was discussed with the Presidents of the National Societies in March 2001.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

The class of recommendations (I-III) and level of evidence (A-C) are defined at the end of the "Major Recommendations" field.

Diagnosis

Strategy of Evaluation

Indications

Class I:

- Basic laboratory tests are only indicated if syncope may be due to loss of circulating volume, or if a syncope-like disorder with a metabolic cause is suspected.
- In patients with suspected heart disease, echocardiography, prolonged electrocardiographic monitoring and, if non-diagnostic, electrophysiological studies are recommended as first evaluation steps.
- In patients with palpitations associated with syncope, electrocardiographic monitoring and echocardiography are recommended as first evaluation steps.
- In patients with chest pains suggestive of ischaemia before or after loss of consciousness, stress testing, echocardiography, and electrocardiographic monitoring are recommended as first evaluation steps.
- In young patients without suspicion of heart or neurological disease and recurrent syncope, tilt testing and, in older patients, carotid sinus massage, are recommended as first evaluation steps.
- In patients with syncope occurring during neck turning, carotid sinus massage is recommended at the outset.
- In patients with syncope during or after effort, echocardiography and stress testing are recommended as first evaluation steps.
- In patients with signs of autonomic failure or neurological disease, a specific diagnosis should be made.

Initial Evaluation

Diagnosis

Class I:

The results of the initial evaluation (history, physical examination, orthostatic blood pressure measurements and electrocardiography) are diagnostic of the cause of syncope in the following situations:

- Vasovagal syncope is diagnosed if precipitating events such as fear, severe pain, emotional distress, instrumentation or prolonged standing are associated with typical prodromal symptoms.
- Situational syncope is diagnosed if syncope occurs during or immediately after urination, defaecation, cough, or swallowing.
- Orthostatic syncope is diagnosed when there is documentation of orthostatic hypotension associated with syncope or pre-syncope. Orthostatic blood pressure measurements are recommended after 5 minutes of lying supine. Measurements are then continued after 1 or 3 minutes of standing and further continued, if blood pressure is still falling at 3 minutes. If the patient does not tolerate standing for this period, the lowest systolic blood pressure during the upright posture should be recorded. A decrease in systolic blood pressure $\geq$20 mmHg or a decrease in systolic blood pressure to <90 mmHg is defined as orthostatic hypotension regardless of whether or not symptoms occur.
- Cardiac ischaemia-related syncope is diagnosed when symptoms are present with electrocardiography evidence of acute ischaemia with or without myocardial infarction, independently of its mechanism. (Note: In the case of ischaemic syncope, the mechanism can be cardiac [low output or arrhythmia] or reflex [Bezold-Jarish reflex], but management is primarily that of ischaemia.)
- Arrhythmia-related syncope is diagnosed by electrocardiography when there is:
    - Sinus bradycardia <40 beats.min^{-1} or repetitive sinoatrial blocks or sinus pauses >3 seconds.
    - Mobitz II second- or third-degree atrioventricular block
    - Alternating left and right bundle branch block
    - Rapid paroxysmal supraventricular tachycardia or ventricular tachycardia
    - Pacemaker malfunction with cardiac pauses

Echocardiogram

Indications

Class I:

- Echocardiography is recommended in patients with syncope when cardiac disease is suspected.

Diagnosis

Class I:

- Echocardiographic findings may be useful to stratify the risk by assessing the cardiac substrate.
- Echocardiography only makes a diagnosis in severe aortic stenosis and atrial myxoma.

Cardiac Sinus Massage

Indications and Methodology

Class I:

- Cardiac sinus massage is recommended in patients over age 40 years with syncope of unknown aetiology after the initial evaluation. In case of risk of stroke due to carotid artery disease, massage should be avoided.
- Electrocardiographic monitoring and continuous blood pressure measurements during carotid massage is mandatory. Duration of massage of a minimum of 5 and a maximum of 10 seconds is recommended. Carotid massage should be performed with the patient both supine and erect.

Diagnosis

Class I:

- The procedure is considered positive if symptoms are reproduced during or immediately after the massage in the presence of asystole longer than 3 seconds and/or a fall in systolic blood pressure of 50 mmHg or more. A positive response is diagnostic of the cause of syncope in the absence of any other competing diagnosis.

Tilt Testing

Recommended Tilt Test Protocols

Class I:

- Supine pre-tilt phase of at least 5 minutes when no venous cannulation is performed, and at least 20 minutes when cannulation is undertaken.
- Tilt angle is 60 to 70 degrees.
- Passive phase of a minimum of 20 minutes and a maximum of 45 minutes.
- Use of other intravenous isoproterenol/isoprenaline or sublingual nitroglycerin for drug provocation if passive phase has been negative. Drug challenge phase duration of 15 to 20 minutes.
- For isoproterenol, an incremental infusion rate from 1 up to 3 micrograms.min^{-1} in order to increase average heart rate by about 20% to 25% over baseline, administered without returning the patient to the supine position.
- For nitroglycerin, a fixed dose of 400 micrograms nitroglycerin spray sublingually administered in the upright position.
- The end-point of the test is defined by induction of syncope or complication of the planned duration of tilt including drug provocation. The test is considered positive if syncope occurs.

Class II:

- Divergence of opinion exists in the case of induction of pre-syncope.

Indications

Class I:

Tilt testing is indicated for diagnostic purposes:

- In cases of unexplained single syncope episodes in high risk settings (e.g., occurrence of, or potential risk for, physical injury or with occupational implications), or recurrent episodes in the absence of organic heart disease, or, in the presence of organic heart disease, after cardiac causes of syncope have been excluded.
- When it will be of clinical value to demonstrate susceptibility to neurally-mediated syncope to the patient.

Class II:

Tilt testing is indicated for diagnostic purposes:

- When an understanding of the haemodynamic pattern in syncope may alter the therapeutic approach.
- For differentiating syncope with jerking movements from epilepsy.
- For evaluating patients with recurrent unexplained falls.
- For assessing recurrent pre-syncope of dizziness.

Class III:

- Assessment of treatment.
- A single episode without injury and not in a high risk setting.
- Clear-cut clinical vasovagal features leading to a diagnosis when demonstration of a neurally mediated susceptibility would not alter treatment.

Diagnosis

Class I:

- In patients without structural heart disease, tilt testing can be considered diagnostic, and no further tests need to be performed when spontaneous syncope is reproduced.
- In patients with structural heart disease, arrhythmias or other cardiac causes should be excluded prior to considering positive tilt test results as evidence suggesting neurally mediated syncope.

Class III:

- The clinical meaning of abnormal responses other than induction of syncope is unclear.

Electrocardiographic Monitoring (Non-invasive and Invasive)

Indications

Class I:

- Holter monitoring is indicated in patients with structural heart disease and frequent (or even infrequent) symptoms when there is a high pre-test probability of identifying an arrhythmia responsible for syncope.
- When the mechanism of syncope remains unclear after full evaluation, external or implantable loop recorders are recommended when there is a high pre-test probability of identifying an arrhythmia responsible for syncope.

Diagnosis

Class I:

- Electrocardiographic monitoring is diagnostic when a correlation between syncope and an electrocardiographic abnormality (brady- or tachyarrhythmia) is detected.
- Electrocardiographic monitoring excludes an arrhythmic cause when there is a correlation between syncope and sinus rhythm.
- In the absence of such correlations additional testing is recommended with the possible exception of:
    - Ventricular pauses longer than 3 seconds when awake
    - Periods of Mobitz II or third-degree atrioventricular block when awake
    - Rapid paroxysmal ventricular tachycardia

Electrophysiological Testing

Indications

Class I:

- An invasive electrophysiological procedure is indicated when the initial evaluation suggests an arrhythmic cause of syncope (in patients with abnormal electrocardiography and/or structural heart disease or syncope associated with palpitations or family history of sudden death).

Class II:

- Diagnostic reasons: to evaluate the exact nature of an arrhythmia which has already been identified as the cause of the syncope.
- Prognostic reasons: in patients with cardiac disorders, in which arrhythmia induction has a bearing on the selection of therapy; and in patients with high-risk occupations, in whom every effort to exclude a cardiac cause of syncope is warranted.

Class III:

- In patients with normal electrocardiograms and no heart disease and no palpitations an electrophysiological study is not usually undertaken.

Diagnosis

Class I:

- Normal electrophysiological findings cannot completely exclude an arrhythmic cause of syncope; when an arrhythmia is likely, further evaluations (for example loop recording) are recommended.
- Depending on the clinical context, abnormal electrophysiological findings may not be diagnostic of the cause of syncope.
- An electrophysiological study is diagnostic, and usually no additional tests are required, in the following cases:
    - Sinus bradycardia and a very prolonged sinus node recovery time corrected for heart rate (CSNRT)
    - Bifascicular block and:
        - A baseline His-ventricle (HV) interval of $\geq$100 ms, or
        - Second- or third-degree His-Purkinje block is demonstrated during incremental atrial pacing, or
        - (If the baseline electrophysiological study is inconclusive) high-degree His-Purkinje block is provoked by intravenous administration of ajmaline, procainamide, or disopyramide
    - Previous myocardial infarction and induction of sustained monomorphic ventricular tachycardia
    - Arrhythmogenic right ventricular dysplasia and induction of ventricular tachyarrhythmias
    - Induction of rapid supraventricular arrhythmia which reproduces hypotensive or spontaneous symptoms

Class II:

- Divergence of opinion exists on the diagnostic value of electrophysiological study in case of:
    - His-ventricle interval of >70 ms but <100 ms
    - Induction of polymorphic ventricular tachycardia or ventricular fibrillation in patients with ischaemic or dilated cardiomyopathy
    - In Brugada syndrome

Adenosine Triphosphate (ATP) Test

The test requires the rapid injection of a 20 mg bolus of adenosine triphosphate during electrocardiographic monitoring. Asystole lasting more than 6 seconds, or atrioventricular block lasting more than 10 seconds, is considered abnormal. Adenosine triphosphate testing produces an abnormal response in some patients with syncope of unknown origin, but not in controls. The diagnostic and predictive value of the test remains to be confirmed by prospective studies. In the absence of sufficient hard data, the test may be indicated at the end of the diagnostic work-up (Class II).

Ventricular Signal-averaged Electrocardiogram

There is general agreement that ventricular signal-averaged electrocardiogram is not diagnostic of the cause of syncope. In patients with syncope and no evidence of structural heart disease, the technique may be useful for guiding the use of electrophysiological studies. Its systematic use is not recommended (Class III).

Exercise Testing

Indications

Class I:

- Patients who experience an episode of syncope during or shortly after exertion.

Class III:

- Use of exercise testing is not recommended in patients who do not experience syncope during exercise.

Diagnosis

Class I:

- Exercise testing is diagnostic when electrocardiogram and haemodynamic abnormalities are present and syncope is reproduced during or immediately after exercise.
- Exercise testing is diagnostic if Mobitz II second- or third-degree atrioventricular block develop during exercise even without syncope.

Cardiac Catheterization and Angiography

Indications

Class I:

- In patients with syncope suspected to be due, directly or indirectly, to myocardial ischaemia, coronary angiography is recommended in order to confirm the diagnosis and to establish optimal therapy.

Class III:

- Angiography alone is rarely diagnostic of the cause of syncope.

Neurological and Psychiatric Evaluation

Indications

Class I:

- Neurological referral is indicated in patients in whom loss of consciousness cannot be attributed to syncope.
- In case of unequivocal syncope neurological referral is warranted when syncope may be due to autonomic failure or to a cerebrovascular steal syndrome.
- Psychiatric evaluation is recommended when symptoms suggest psychogenic syncope (somatization disorder) or if the patient has a known psychiatric disorder.

Class III:

- In all other patients with syncope, neurological and psychiatric investigations are not recommended.

Treatment

General Principles

It is valuable to assess the relative contribution of cardioinhibition and vasodepression before embarking on specific treatment as there are different therapeutic strategies for the two aspects. Even if evidence of utility of such an assessment exists only for carotid sinus massage, it is recommended to extend this assessment by means of tilt testing or an implantable loop recorder.

Patients who have syncope in a "high risk" setting (e.g., commercial vehicle driver, machine operator, pilot, commercial painter, competitive athlete) merit specific consideration for treatment. There is no information available regarding the efficacy of treatment in this type of patient, and whether it differs from other patients with neurally-mediated faints.

Treatment is not necessary in patients who have sustained a single syncope and are not having syncope in a high risk setting.

Class I:

- Explanation of the risk, and reassurance about the prognosis in vasovagal syncope.
- Avoidance of trigger evens as much as possible and reducing the magnitude of potential triggers when feasible (e.g., emotional upset) and causal situation in situational syncope.
- Modification or discontinuation of hypotensive drug treatment for concomitant conditions.
- Cardiac pacing in patients with cardioinhibitory or mixed carotid sinus syndrome.

Class II:

- Volume expansion by salt supplements, an exercise programme or head-up tilt sleeping (>10 degrees) in posture-related syncope.

- Cardiac pacing in patients with cardioinhibitory vasovagal syncope with a frequency >5 attacks per year or severe physical injury or accident and age >40 years.
- Tilt training in patients with vasovagal syncope.

Class III:

- The evidence fails to support the efficacy of beta-adrenergic blocking drugs. Beta-adrenergic blocking drugs may aggravate bradycardia in some cardioinhibitory cases.

Orthostatic Hypotension

Class I:

- Syncope due to orthostatic hypotension should be treated in all patients. In many instances treatment entails only modification of drug treatment for concomitant conditions.

Cardiac Arrhythmias as Primary Cause

Class I:

- Syncope due to cardiac arrhythmias must receive treatment appropriate to the cause in all patients in whom it is life-threatening and when there is a high risk of injury.

Class II:

- Treatment may be employed when the culprit arrhythmia has not been demonstrated and a diagnosis of life-threatening arrhythmia is presumed from surrogate data.
- Treatment may be employed when a culprit arrhythmia has been identified but is not life-threatening or presenting a high risk of injury.

Structural Cardiac or Cardiopulmonary Disease

Class I:

- Treatment is best directed at amelioration of the specific structural lesion or its consequences.

Special Issues in Evaluating Patients with Syncope

Need for Hospitalization

When to Hospitalize a Patient with Syncope

For diagnosis:

- Suspected or known significant heart disease
- Those electrocardiographic abnormalities suspected of arrhythmic syncope (see Table 2.3 titled "ECG Abnormalities Suggesting an Arrhythmic Syncope" in the original guideline document)
- Syncope occurring during exercise
- Syncope causing severe injury
- Family history of sudden death
- Other categories that occasionally may need to be admitted:
    - Patients without heart disease but with sudden onset of palpitations shortly before syncope, syncope in supine position and patients with frequent recurrent episodes;
    - Patients with minimal or mild heart disease when there is high suspicion for cardiac syncope

For treatment:

- Cardiac arrhythmias as cause of syncope (see the section titled "Initial Evaluation", above)
- Syncope due to cardiac ischaemia (see the section titled "Initial Evaluation", above)
- Syncope secondary to the structural cardiac or cardiopulmonary diseases (see Table 1.1 titled "Causes of Syncope" in the original guideline document)
- Stroke or focal neurologic disorders
- Cardioinhibitory neurally-mediated syncope when a pacemaker implantation is planned

Syncope in the Older Adult

Class I:

- Morning orthostatic blood pressure measurements and supine and upright carotid sinus massage are integral to the initial evaluation unless contraindicated.
- The evaluation of mobile, independent, cognitively normal older adults is as for younger individuals.
- In frailer older adults evaluation should be modified according to prognosis.

Driving and Syncope

A European Society of Cardiology Task Force report on driving and heart disease was published in 1998 which is the present reference standard for Europe. Two groups of drivers are defined. Group 1 comprises drivers of motorcycles, cars and other small vehicles with and without a trailer. Group 2 includes drivers of vehicles over 3Â·5 metric tonnes (3Â·500 kilo) or passenger-carrying vehicles exceeding eight seats excluding the driver. Drivers of taxicabs, small ambulances and other vehicles form an intermediate category between the ordinary private driver and the vocational driver.

The guidelines listed as the reference standard aim at being practical and enforceable. The guidelines reflect a combination of clinical judgment in addition to some individual technical measurements. For Group 1 drivers the task force advises minimal restrictions and thus only temporarily should patients with heart

disease and syncope in this group be advised not to drive. (See Table 4.3 titled "Recommendations for Driving Rules In Patients Suffering from Syncope" in the original guideline document for a complete list of disqualifying criteria for the two groups of drivers.)

Comment

This Task Force has the benefit of further publications that are relevant. Repeat tilt testing to assess any therapy probably has no predictive value. There is no evidence that allowing 3 asymptomatic months to elapse provides any confirmation that attack will not recur. To date, the evidence in favour of drug therapy remains unconvincing. Neurological review in syncopal patients is of little value.

Definitions:

Levels of Evidence:

A. Data derived from multiple randomized clinical trials or meta-analyses
B. Data derived from a single randomized trial or non-randomized studies
C. Consensus opinion of the experts

Class of Evidence:

Class I: Conditions for which there is evidence or general agreement that a given procedure or treatment is useful

Class II: Conditions for which the usefulness of the procedure or treatment is less well established or divergence of opinion exists among the members of the Task Force

Class III: Conditions for which there is evidence and/or general agreement that the procedure/treatment is not useful/effective and in some cases may be harmful

CLINICAL ALGORITHM(S)

An algorithm is provided for the evaluation of syncope.

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

This document reviews the few randomized-controlled trials that have been reported and studies of non-randomized design.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

- Accurate diagnosis of syncope
- In general, treatment of syncope may result in prevention of syncopal recurrences, reduction of mortality risk, prevention of symptom recurrence and associated injuries, and an improved quality of life

POTENTIAL HARMS

Carotid Sinus Massage

- The main complications of carotid sinus massage are neurological. Rarely, carotid massage may elicit self-limited atrial fibrillation of little clinical significance.

Head-up Tilt Test, With or Without Drug Provocation

- Prolonged loss of consciousness
- Atrial fibrillation can be induced during or after a positive tilt test and is usually self-limited
- Case reports have documented life-threatening ventricular arrhythmias with isoproterenol in the presence of ischaemic heart disease or sick sinus syndrome.
- Minor side effects are common and include palpitations with isoproterenol and headache with nitroglycerin.

Adenosine Triphosphate (ATP) Test

- Side effects are generally mild. Facial flush, shortness of breath, and chest pressure are the most frequently reported effects. Lightheadedness or syncope may also occur but are 'expected'. Rarely, short-duration, self-limiting atrial fibrillation is initiated.

Vasoconstrictors

- Major adverse central nervous system effects
- Hypertension

Volume Expanders

- Hypertension

Implanted Devices, Such as Pacemakers

- Infrequently, implantable pacing systems have been associated with provoking near-syncope or syncope.

Anti-arrhythmic Agents

- Can produce side effects and carry a pro-arrhythmic risk

Subgroups Most Likely to be Harmed:

Carotid massage should be avoided in patients with previous transient ischaemic attacks or stroke within the past 3 months or in patients with carotid bruits.

CONTRAINDICATIONS

CONTRAINDICATIONS

Due to possible bronchospastic reactions, the adenosine triphosphate (ATP) test is contraindicated in patients with known asthma. Due to the risk of coronary steal, the test is also contraindicated in patients with significant coronary disease.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- The literature on syncope testing is largely composed of case series, cohort studies, or retrospective analyses of already existing data. The impact of testing on guiding therapy and reducing syncopal recurrences is difficult to discern from these methods of research without randomization and blinding. Because of these issues, the guideline panel performed full reviews of the literature for diagnostic tests but did not use pre-defined criteria for selection of articles to be reviewed. Additionally, the panel did not feel that an evidence-based summary of the literature was possible.
- In assessing treatment of syncope, the guideline document reviews the few randomized-controlled trials that have been reported. For various diseases and disorders with known treatments (e.g., orthostatic hypotension, sick sinus syndrome) those therapies are reviewed and recommendations are modified for patients with syncope. Most studies of treatment have used a non-randomized design and many even lack a control group. The interpretation of these studies is very difficult but their results were used in summary recommendations of treatment.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Living with Illness

IOM DOMAIN

Effectiveness
Patient-centeredness
Safety

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Brignole M, Alboni P, Benditt D, Bergfeldt L, Blanc JJ, Bloch Thomsen PE, van Dijk JG, Fitzpatrick A, Hohnloser S, Janousek J, Kapoor W, Kenny RA, Kulakowski P, Moya A, Raviele A, Sutton R, Theodorakis G, Wieling W. Guidelines on management (diagnosis and treatment) of syncope. Eur Heart J 2001 Aug;22(15):1256-306. [409 references]

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2001 Aug

GUIDELINE DEVELOPER(S)

European Society of Cardiology - Medical Specialty Society

SOURCE(S) OF FUNDING

European Society of Cardiology

GUIDELINE COMMITTEE

Task Force on Syncope

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Task Force Members: M. Brignole (Chairman); P. Alboni; D. Benditt; L. Bergfeldt; J. J. Blanc; P. E. Bloch Thomsen; J. G. van Dijk; A. Fitzpatrick; S. Hohnloser; J. Janousek; W. Kapoor; R. A. Kenny; P. Kulakowski; A. Moya; A. Raviele; R. Sutton; G. Theodorakis; W. Wieling

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

An update is not in progress at this time.

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the European Society of Cardiology (ESC) Web site.

Print copies: Available from Elsevier Publishers Ltd. 32 Jamestown Road, London, NW1 7BY, United Kingdom. Tel +44.207.424.4200/ Tel: +44 207 424 4389; Fax: +44 207 424 4433; e-mail: gr.davies@elsevier.com; Web site: www.escardiocontent.org.

AVAILABILITY OF COMPANION DOCUMENTS

The following are available:

- Recommendations for Task Force creation and report production. Sophia Antipolis (France): European Society of Cardiology, 2002.

  Electronic copies: Available in Portable Document Format (PDF) from the European Society of Cardiology (ESC) Web site.

- Task Force on Syncope, European Society of Cardiology. Part 1. The initial evaluation of patients with syncope. Europace 2001 3:253-60.

  Electronic copies: Available in Portable Document Format (PDF) from the European Society of Cardiology (ESC) Web site.

- Guidelines on management of syncope. Pocket guidelines. Sophia Antipolis (France): European Society of Cardiology, 2001.

  Electronic copies: An order form for ESC pocket guidelines is available in Portable Document Format (PDF) from the European Society of Cardiology (ESC) Web site.

- Guidelines on management of syncope. Educational slides. Sophia Antipolis (France): European Society of Cardiology, 2001.

  Electronic copies: Available in Microsoft PowerPoint from the European Society of Cardiology (ESC) Web site.

PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI on April 2, 2002.

COPYRIGHT STATEMENT

This summary is based on the original guideline, which is subject to the guideline developer's restrictions.

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